

REMARKS

Applicant has carefully reviewed the Office Action mailed June 6, 2008, and thanks Examiner Johnson for the detailed review of the pending claims. Applicants' representative further wishes to thank Examiner Johnson for extending the courtesy of a telephonic Interview on August 27, 2008, during which the prior art of record was discussed, in particular U.S. Patent No. 4,378,959 to Susnjara (hereinafter "Susnjara"). Applicants have made minor amendments to independent claims 13, 26, and 33 to clarify the subject matter contained therein, as further described below. Further, Applicants have added new claims 38-41. Support for these amendments can be found throughout the specification and drawings as originally filed, as further described below. Claims 1-2, 14, 16-18, 20, 23, 28, 29, 31, and 32 were previously canceled. Accordingly, claims 13, 15, 19, 21, 22, 24-27, 30, and 33-41 are now pending.

At least for the reasons set forth below, Applicant believes the pending claims are allowable over the references of record. Further, Applicant believes that there are also reasons other than those set forth below why the pending claims are patentable, and reserves the right to set forth those reasons, and to argue for the patentability of claims not explicitly addressed herein, in future papers.

Claim Rejections – 35 U.S.C §102

The Office Action rejected claims 13, 15, 19, 21, 22, 24-27, 30, and 33-37 under 35 U.S.C. 102(b) as being allegedly anticipated by Susnjara. This rejection is respectfully traversed.

A. Independent Claims

Independent claims 13 and 33 have been amended, and now recite in part:

a wrist having a first member concentrically attached to the robot arm along the axial path and rotatably moveable with respect to the arm about an arm axis of rotation defined by the arm, the arm axis of rotation extending along a portion of the axial path; at least one robot line positioned along the axial path; [and] a bellows positioned along the axial path connected to the line and the robot arm allowing extension or compression of the line along the axial path... (Emphasis added)

Independent claim 26 has been similarly amended, and now recites in part:

a wrist attached to the arm and rotatable with respect to the arm about an arm axis of rotation defined by the arm, the arm axis of rotation extending along a portion of the axial path... at least one robot line passing from the robot arm through the mounting plate hole and the wrist along the axial path; [and] an axially displaceable bellows positioned along the axial path around a portion of the at least one line, the bellows is connected to the line and the mounting plate...

(Emphasis added)

Support for the amendments to claims 13, 26, and 33 can be found throughout the specification and drawings as originally filed, at least at paragraph [0023] and [0040] of the specification, and FIG. 4 of the drawings. Susnjara fails to teach or suggest such an arrangement.

More specifically, Susnjara discloses an apparatus for performing work functions that includes members that are angularly displaceable with respect to one another, and are not rotatable with respect to one another:

An apparatus for performing a work function on a workpiece comprising a stationary base, a rotatable base mounted on the stationary base, a hydraulically actuated mechanism for rotatably displacing the rotatable base relative to the stationary base, a lower arm member pivotally mounted on the rotatable base, a hydraulically actuated mechanism for angularly displacing the lower arm member relative to the rotatable base, an upper arm member pivotally mounted on the lower arm member, a hydraulically actuated mechanism for angularly displacing the upper arm member relative to the lower arm member, a wrist assembly mounted on the upper arm member, a hand member universally mounted on the wrist assembly, a hydraulically actuated mechanism for angularly displacing the hand member relative to the wrist assembly, a mechanism disposed on the hand member for mounting a work tool, the stationary and rotatable bases including a rotary fluid slip ring assembly, and an assembly for transmitting fluid between the stationary base and the hydraulically actuated mechanism... (Emphasis added)

See Susnjara, Abstract. To this end, Susnjara illustrates a member (21) that is only angularly displaceable or pivotable with respect to a wrist assembly (20), but is not rotatable with respect to the wrist assembly (20). The member (21) is secured to the wrist assembly (20) via three push rods (107, 108, 109) that are slidably mounted in corresponding bores (98, 99, 100) of the wrist

assembly (20). *See Susnjara, FIGS. 9, 10, and 12; and Col. 5, lines 1-4.* The push rods (107, 108, 109) thus effect angular displacement of the wrist assembly (20) with respect to the member (21) by sliding back and forth within the bores (98, 99, 100). Accordingly, the wrist member (21) cannot be “rotatably moveable with respect to the arm about an arm axis of rotation defined by the arm, the arm axis of rotation extending along a portion of the axial path,” as recited in claims 13 and 33, or “rotatable with respect to the arm about an arm axis of rotation defined by the arm, the arm axis of rotation extending along a portion of the axial path,” as recited in claim 26.

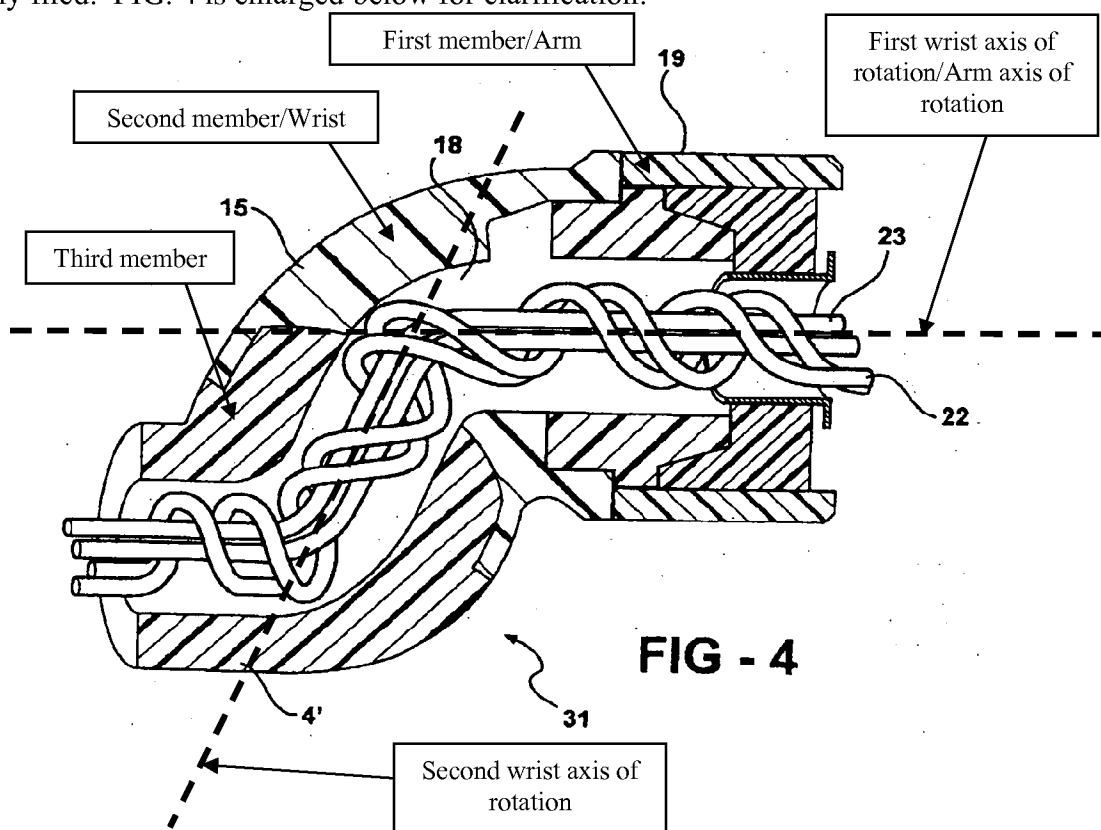
The Office Action states that “Susnjara discloses a wrist (20) having a first member (96) concentrically attached to the robot along the axial path (see Fig 11)...” *See Office Action dated 6/6/2008, page 2.* While the wrist (20) may be rotatable with respect to the member (21) inasmuch as angular displacement may be seen as a type of “rotation,” Applicants note that the claims now recite that the wrist must be “rotatably moveable with respect to the arm about an arm axis of rotation defined by the arm, the arm axis of rotation extending along a portion of the axial path,” as recited in claims 13 and 33, or “rotatable with respect to the arm about an arm axis of rotation defined by the arm, the arm axis of rotation extending along a portion of the axial path,” as recited in claim 26. In other words, Susnjara fails to teach or suggest the arrangement of claims 13, 26, and 33 because the wrist (20) can only pivot angularly with respect to the member (21), and cannot rotate “about an arm axis of rotation defined by the arm, the arm axis of rotation extending along the axial path.” Thus any alleged “rotation” of the wrist (20) and/or member (21) resulting from the angular pivoting of the wrist (20) and/or member (21) is not “about an arm axis of rotation defined by the arm.” Moreover, rotation of the wrist (20) “about” an axis defined by the member (21) would be impossible with the apparatus taught by Susnjara because the push rods (107, 108, 109) must be non-rotatably secured to the wrist (21) and member (20) in order to effect the angular displacement between the wrist (21) and member (20).

Applicants thus respectfully submit that independent claims 13, 26, and 33 are allowable over the references of record.

B. Dependent Claims

Dependent claims 15, 19, 21, 22, 24, 25, 27, 30, and 34-41 each depend from one of independent claims 13, 26, or 33, and are therefore allowable over the references of record for at least the same reasons described above. Moreover, the dependent claims recite independently patentable subject matter that is neither taught nor suggested by the references of record.

For example, new dependent claims 38-40 have been added. Claims 38 and 40 each recite “wherein the first member defines a first wrist axis of rotation about the arm, the first member defines a second wrist axis of rotation about a third member secured to the wrist, and the second wrist axis of rotation intersects the first wrist axis of rotation.” Similarly, new claim 39 recites “wherein the wrist defines a first wrist axis of rotation about the arm, the first member defines a second wrist axis of rotation about a third member secured to the wrist, and the second wrist axis of rotation intersects the first wrist axis of rotation.” Support for these new claims can be found at least at paragraph [0040] of the specification, and FIG. 4 of the drawings as originally filed. FIG. 4 is enlarged below for clarification:



Each of the three members “can be rotated relative to each other.” *See Applicants’ Specification, paragraph [0040]*. Accordingly, the first member shown in FIG. 4 is rotatable with respect to the second member about the “first wrist axis of rotation,” which, in the embodiment shown in FIG. 4, is the same as the “arm axis of rotation.” Further, the second member is rotatable with respect to the third member about the “second wrist axis of rotation.” As shown in FIG. 4, the first and second wrist axes of rotation intersect.

By contrast, because the wrist (20) and member (21) can only angularly pivot with respect to each other, the wrist (20) and member (21) only define a single axis of rotation. As best seen in FIG. 10 of *Susnjara*, when the wrist (20) is pivoted, it does so with respect to the member about the pivot point defined between links 107 and 109a. *See Susnjara, FIG. 10*. There is no “second wrist axis of rotation,” much less one that “intersects the first wrist axis.” Accordingly, dependent claims 38-40 are allowable over the references of record for at least this additional reason.

Susnjara also fails to teach or suggest “wherein the through hole of the mounting plate allows axial displacement of the line through the mounting plate,” as recited in new dependent claim 41. Support for this new claim can be found at least at paragraph [0028] of the specification, and FIGS. 2b, 3b, and 4 of the drawings as originally filed. As best seen in FIG. 11 of *Susnjara*, the line (unnumbered in FIG. 11, extending between mounting plate 105 and support block 96) is secured directly to the mounting plate (105) at one end, and the support block (96) at the other end, and therefore does not allow “axial displacement of the line through the mounting plate.” *See Susnjara, FIG. 11*. Moreover, *Susnjara* could not be modified to allow “axial displacement of the line through the mounting plate,” as any through-hole formed in the mounting plate (105) would cause wear upon the line. In other words, the line would rub upon edges of the through hole and/or mounting plate during angular pivoting of the wrist (20) and/or member (21), for which *Susnjara* is particularly designed.

Reconsideration and withdrawal of the pending rejections is respectfully requested.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. 66835-0003 from which the undersigned is authorized to draw.

Dated: September 8, 2008

Respectfully submitted,

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